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ducing the new compound; since both the oxides dissolve in water. When under these circumstances none of the constituents of the older mineral separates, it is self-evident that they will all present themselves in less quantity in the newly formed combination than in that from which it was derived. If a silicate of lime had simply been mixed with the Trautwinite, hydrochloric acid would have affected it. But the acids have no action upon it; hence it is very probable that the silica and lime combined with the chromite form the mineral which we call Trautwinite.

The death of Theodore F. Moss was announced.

October 21.

The President, Dr. Ruschenberger, in the chair.

Twenty-nine members present.

Stibiaferrite, a new Mineral from Santa Clara County, California. By E. Goldsmith.—The mineral occurs on Stibnite, and enters the rock on both sides. The Stibnite between the two layers of the new mineral is 1½ inch thick; and this appears to be the thickness of the vein at the spot whence the specimen was taken. The layers of the *Stibiaferrite* vary in thickness from a thin coating to about a quarter of an inch.

The most of it is amorphous. On examining a number of specimens, I observed some small cavities containing, I believe, the same substance in crystals. The crystals, when observed under a power of a ¾ lens, have the habitus of ortho-rhombic prisms. They are generally attached by one end, but a few extend to the other side of the cavity. The termination is the basal plane; I could not find a crystal having a finite pyramid; the infinite pyramids were those of the first and second order. The measurement of one of the crystals, which had a favorable position for observation, was performed with a goniometer (Leeson's) belonging to Mr. Clarence S. Bement. Although I made several efforts to get the exact angles of the crystals, yet I wish it to be understood that the values obtained are only approximate.

The following are the indices or symbols of the observed forms according to the three authors:—

Miller	100,	010,	001,	110.
Naumann . . .	$\infty\breve{P}\infty$,	$\infty\bar{P}\infty$,	OP,	∞P.
Dana	iĭ,	iī,	O,	I.

The following angles represent normals:—

100,001	90° 0′.
100,010	90° 0′.
001,010	90° 0′.
110,110″	100° 8′.
110,110′	79° 52′.
110,010	39° 56′.
110,001	50° 4′.

The fracture is uneven conchoidal. Opaque in the amorphous, subtranslucent when crystallized.

The lustre is slightly resinous.

The color of the crystallized mineral is faint yellow.

The amorphous is more yellow, and, on some parts, it is even brownish-yellow.

The streak is dull yellow. The powder of the mineral in a thick layer on a white surface is straw-yellow.

The cohesion is not strong; it yields easily to the point of the knife, producing angular pieces, brittle.

The hardness is equal to fluorite, or 4.

Specific gravity = 3.598.

The mineral has no effect on the magnetic needle.

Pyrochemical test: In the glass tube closed on one end it affords water and a white sublimate. On charcoal, metallic globules and a white incrustation, which deposited far from the test, and on stopping the fire, rising fumes. Borax affords, in the oxidizing and in the reducing flames, beads, which are yellow while hot and colorless after cooling.

In nitric acid the substance is not soluble. Hydrochloric acid dissolves it, except quartz, which is an impurity.

Caustic potassa decomposes the mineral, changing the yellow powder apparently into red. The liquor, however, then contained antimoniate of potassa, which, when poured into a mixture of iodide of potassium and hydrochloric acid, liberated iodine. The red powder I ascertained to be sesquioxide of iron.

The quantity of the water I determined by the loss on heating the substance to a low red heat.

For the quantitative determination of the antimonic acid I fused the substance with carbonate of soda and sulphur; extracted the black mass with water, washed, precipitated the sulphuretted antimony with hydrochloric acid, and, after drying and weighing the mixture of sulphuret of antimony and sulphur, I analyzed an aliquot part of it, according to Bunsen's process. (It appears that the adopted process chosen for the determination of the antimony is one of the best known; yet the loss is always greater than it ought to be for close work. It would be a good gift if anybody could present us with a process for the determination of antimony in which the weighing of the sulphuret of antimony and sulphur on a dried paper filter could be avoided.) The iron and the quartz were determined in the usual way.

The result of the analysis was—

$\overset{\cdot\cdot\cdot\cdot\cdot}{\mathrm{Sb}}$	42.96	per cent.
$\overset{\cdot\cdot\cdot}{\mathrm{\bar{F}e}}$	31.85	"
$\dot{\mathrm{H}}$	15.26	"
Quartz	8.84	"
Loss	1.09	"
	100.00	

After deducting the quartz and calculating the remainder to percentage, I obtain for the pure substance:—

$\overset{\cdot\cdot\cdot}{\overset{\cdot\cdot}{\mathrm{Sb}}}$	47.69 per cent.	Oxygen	11.77
$\dddot{\overline{\mathrm{Fe}}}$	35.36 "	"	10.60
$\dot{\mathrm{H}}$	16.94 "	"	15.05

The equivalent oxygen ratio of $\overset{\cdot\cdot\cdot}{\overset{\cdot\cdot}{\mathrm{Sb}}} : \dddot{\overline{\mathrm{Fe}}} : \dot{\mathrm{H}}$ is as 1.1 : 1 : 1.4, or nearly as 1 : 1 : $1\frac{1}{2}$, for which I propose the formula $2(\overset{\cdot\cdot\cdot}{\overset{\cdot\cdot}{\mathrm{Sb}}} + \dddot{\overline{\mathrm{Fe}}}) + 3\mathrm{H}$.

The mineral described is therefore a hydrous antimoniate of iron.

In regard to the Stibnite, from which the *Stibiaferrite* was probably derived, I have to state a few facts. I made an analysis of it in order to ascertain whether it contained any antimonic acid, or a large amount of iron in any form, but both questions were answered in the negative. The principal difference in the composition of the Stibnite is the large amount of silica with which it is intimately mixed, besides a little arsenic and lead, probably present as sulphurets. The quantitative determination of the latter two I omitted. In all, I ascertained that the antimony was fully saturated with sulphur to form the tersulphuret of antimony. ($\overset{\mathrm{III}}{\mathrm{Sb}}$). The following is the result of my analysis:—

Sb	41.21 per cent.
S	14.85 "
$\dddot{\overline{\mathrm{Fe}}}$	.02 "
$\ddot{\mathrm{Si}}$	43.34 "
	99.42 "

I have also a specimen of the rock in which the vein of the Stibnite occurs, and into which the *Stibiaferrite* ramifies. The purest part is white, some is grayish and yellow, caused by the *Stibiaferrite*. The fracture is rough, uneven, on some parts angular. I observed cracks in all directions, but, when closely examined with the lens, I noticed that they are filled with the *Stibiaferrite*.

The rock is perfectly dull, and so is the streak.

The hardness varies between 3 and 5.

The specific gravity I found to be = 2.7529.

Pyrochemical test: On charcoal alone no change. With carb. soda, evolution of carbonic acid gas takes place; and the substance dissolves in the soda, forming a dirty green glass.

In the glass tube closed on one end it affords water and darkness.

Hydrochloric acid has but little effect on it; the acid solution contained but a small amount of Sb and Fe. Hydrofluoric acid dissolves it readily on warming, leaving but a little residue after evaporating the liquor. Caustic potassa dissolves it nearly all, the residue left was very little. The qualitative analysis of a very white piece of this rock furnished the result that the principal substance is amorphous silica, mixed with a little of the oxides of antimony, lead, and iron.

A quantitative Bausch analysis of this rock I did not undertake, because every specimen has probably a different composition, due to the unequal distribution of the *Stibiaferrite.*

As I have not seen the rock *in situ*, I cannot say whether there occurs more antimony in the form of *Stibiaferrite* or as Stibnite; at any rate, it is worth while for the managers of the mine to make this inquiry and let us know.

The Stibnite had on one spot a cavity containing about four crystals of very small size. Viewed under the microscope one white crystal had the form of Valentinite, as figure 179 in Dana's Desc. Min., which crystal was attached to a crystal of Stibnite, showing the gradual change of the latter into the former. Another crystal appeared to be a perfect cube, which may be Senarmontite.

I first saw the specimens in the collection of John C. Trautwine, C. E. This gentleman called my attention to the peculiar yellow mineral on the Stibnite, which he presumed to be new; the presumption is correct so far as my investigation goes, and I herewith return thanks for the specimens received.

OCTOBER 28.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-two members present.

The following paper was presented for publication: "Descriptions of Mexican Ichneumonidæ." By C. T. Cresson.

The following gentlemen were elected members: Jos. C. Wright and Dr. G. T. Barker.

Charles V. Riley, of St. Louis, Mo., was elected a Correspondent.

NOVEMBER 4.

The President, Dr. RUSCHENBERGER, in the chair.

Thirty-five members present.

NOVEMBER 11.

The President, Dr. RUSCHENBERGER, in the chair.

Nineteen members present.

Mr. THOMAS MEEHAN desired to correct an error made in his remarks on the Exceptional Conditions of Forest-seed Germination, to which Mr. Sereno Watson had kindly called his attention.